acaceæ, Illecebraceæ, Dianthaceæ (more generally known as Caryophyllaceæ), Nymphæaceæ, Ceratophyllaceæ, Ranunculaceæ, Actæaceæ (comprising the single genus Actæa), Berberidaceæ, Pæoniaceæ (limited to Pæonia), Papaveraceæ, and Fumariaceæ. The genera Montia and Cerastium have been elaborated by Dr. G. C. Druce, several genera of Dianthaceæ by Prof. R. H. Compton, and the genus Fumaria by Mr. H. W. Pugsley. In view of unavoidable delay in publication, it would be an advantage if the dates of completion of the monographs of the various families and genera were given; this would avoid the necessity for explanation in such cases, for instance, as Mr. Pugsley's account of Fumaria, which is antedated in publication by his recent complete monograph of the genus in the Linnean Society's journal, but was probably completed before the more important work was undertaken.

Dr. Moss has intercalated in the text notes on systematic arrangement, limitations of orders and families, and discussions of points of nomenclature, many of which are of considerable interest, though sometimes difficult of appreciation by the ordinary student of British botany, who may, perhaps, consider the elevation of Actæa and Pæonia to the rank of distinct families as puzzling and unnecessary. On the other hand, the student of the British flora will welcome the careful and critical treatment of the genera, species, and varieties of his plants, and appreciate the notes on their respective distribution in Great Britain and Europe, and the discussions as to their indigenousness in doubtful cases. The outline maps indicating distribution are a useful feature, and the information conveyed therein may be supplemented should occasion arise.

It is to be regretted that personal matters should have been introduced into a work of this kind. "The Cambridge British Flora" will, presumably, take rank as a standard work, a presentation of the knowledge and views of eminent British botanists at a certain period in the history of botany, and to perpetuate the differences of opinion which have arisen on matters of very secondary importance detracts from the dignity which such a work should possess. The syndics of the Cambridge University Press would have been well advised if they had exercised a fatherly censorship on several paragraphs in the introduction to the present volume. In conclusion, we would express the hope that the two succeeding volumes, which will carry the work to the end of the family Rosaceæ, will be published with as little delay as possible.

A. B. R.

Man and Matter.

Religion and Science: From Galileo to Bergson. By J. C. Hardwick. Pp. ix+148. (London: S.P.C.K.; New York: The Macmillan Co., 1920.) Price 8*s*. net.

BECAUSE we wish to give a very favourable impression of this little book, we propose to state our criticisms at once, leaving no "but" to the end which might suggest a reservation on the part of the reviewer. Mr. Hardwick has written a very clear account of some of the chief movements of philosophic thought since the Renaissance, in so far as these bear on the concepts of science and of religion, though he modestly disclaims so large a plan. We doubt if the title is well chosen, in spite of its excellent simplicity. "Religion and Science" suggests apologetic, possibly ill-balanced and ignorant, and this the book emphatically is not. Further, the author's definition of science is unduly wide in scope. "Systematic and accurate knowledge about everything there is to be known" (p. 2) really covers the whole of philosophy: science, as the term is commonly understood, deals with the facts of the physical universe alone. Thus the statement that "religion and science regard reality from different angles, but it is the same reality that is . . . the goal of their search" (p. 6), though true for the author's definition, is not true for Prof. Karl Pearson's (which he quotes) or for that of the ordinary man. The statements about radium on p. 126 are condensed to the verge of inaccuracy. Radium is *not* the only element which breaks down; it does *not* evaporate; nor are all the particles into which it disintegrates electrons, as the phrasing suggests. The statement that "electricity is a species of energy which can be expressed in terms of Will" (p. 128) conveys absolutely no meaning as it stands, and suggests that the author has not wholly escaped the plausible but dangerous idea that the dematerialisation of matter to which scientific investigation is tending necessarily brings matter nearer in nature to mind, thus confirming the idealist position.

Philosophers may here and there disagree with the author's emphasis. For example, the contribution of Hegel is generally held to be more important than is here allowed, or at least than is brought out; while the statement of the influence of Kant gives more finality to his work than is perhaps justifiable. But these are all minor blemishes—for the most part verbal—in a valuable book. Though it is far from faultless, we do not remember to have seen so clear, simple, and balanced a summary of the main trends of human

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thought about the relation between man and the matter amid which he lives and moves.

Few young students of science, and as few clergy, have any clear view of the history of the philosophic thought that bears on their work. We would suggest that the time spent in reading this little book would bring them lasting gain. It is so simple that it will interest those quite untrained in philosophy. It is not technical; it is neither dogmatic nor aggressive; it does not moralise or urge a doctrinal point of view. Furthermore, it is redeemed from the deadliness of most summaries by its admirable clarity and its firm adherence to one path where tempting by-ways cross it. The layman in science and theology will be almost equally attracted, and will rise with whetted appetite; for the defect, or merit, of the book is that one wishes it were longer and fuller. Nevertheless, we believe that Mr. Hardwick has done wisely in keeping his limits so narrow. He might have written a much bigger book, done it equally well, and yet have missed his mark. As it is, we believe that his shot will go home.

S. A. McDOWALL.

Our Bookshelf.

Mrs. Warren's Daughter: A Story of the Woman's Movement. By Sir Harry Johnston. Pp. xi+402. (London: Chatto and Windus, 1920.) Price 7*s*. 6*d*. net.

IN writing "Mrs. Warren's Daughter," and more particularly in his first and very successful novel, "The Gay Dombeys," Sir Harry Johnston has sought to reproduce some aspects of the life led by men of science in London during the decades which stretch from last century into the present. Both novels are speculations regarding the influence of environment on human character and action; in "The Gay Dombeys" the author seeks to depict the influence of the post-Darwinian period on the descendants of the Dombey family created by Dickens, and in "Mrs. Warren's Daughter" he gauges the effect of the feminist movement of recent years on the daughter of that rather tarnished lady, Mrs. Warren, placed first on the stage of literature by Mr. George Bernard Shaw. Those, however, who knew the Zoological, Geographical, Anthropological, and other learned London societies some thirty or forty years ago will read these books with a double interest, for they will find that Sir Harry's characters resuscitate past chapters in the history of scientific life in London. The author, it is needless to say, uses a light and nimble pen to draw word-pictures seen from a highly individualistic Harry Johnstonian angle.

In "Mrs. Warren's Daughter" we are introduced to Prof. Michael Rossiter, F.R.S., "a really admirable and fluent lecturer on anthropology, chemistry, ethnology, hygiene, geography, economic botany, regional zoology, germ diseases, agriculture, etc., etc." Prof. Rossiter, whom we should suppose to be a character compounded from the late very distinguished surgeon, Sir Victor Horsley, and from the pioneer of modern physiology in England, the late Sir Michael Foster, is given qualifications as a lecturer beyond the wide capabilities of the combined originals. Even Sir Harry Johnston himself, who has first-hand acquaintance of more branches of knowledge than almost any man living, would hesitate to carry out the programme he assigns to Prof. Rossiter.

Der Aufbau der Materie: Drei Aufsätze über moderne Atomistik und Elektronentheorie. By Max Born. Pp. v+81. (Berlin: Julius Springer, 1920.) Price 8.60 marks.

IN the form of three essays the author has given a clear and simple summary of the advances which have been made during the last few years in our knowledge of atomic structure. The first essay consists of a survey of the results obtained by purely physical investigations. It describes the measurement of the charge and mass of the electron, the Kelvin-Thomson model of the atom and the Rutherford-Bohr model which succeeded it, the discovery of the diffraction of X-rays by crystals, and Moseley's work on X-ray spectra and atomic number. A short account is given of Bohr's theory and its development by Sommerfelt, of the general relationships between the spectra of the elements, and of Kossel's work on electrovalency, which determines the number of electrons in the several shells surrounding the positively charged nucleus. In the second essay, the former attempts to obtain a mechanical model of the æther are contrasted with the modern conception of all mechanical forces as being electrical in their origin. Our knowledge of crystal structures has made possible a closer examination of the inter-atomic forces in solid bodies; quantitative relationships can be obtained—for instance, in the case of sodium chloride—between purely physical constants, such as the distances between the atoms, the ionic charges, and the compressibility of the solid on one hand and the heat of formation of the compound on the other. This is amplified in the third essay. Both chemistry and physics deal ultimately with the structure of the atom, for the constants which govern chemical reactions are to be explained in terms of the forces between electrons and nucleus in the atomic structure.

In so small a volume, the author cannot do more than indicate the results which have been obtained in each line of investigation, but very complete references are given to the original papers on the subject. So much work of fundamental importance has been done in the last three or four years that this book will be welcome, both as an introduction to the most recent researches, and for the useful references which it contains.

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